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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/879,583	06/12/2001	Robert Wipfel	26530.60	6234

27683 7590 05/17/2004

HAYNES AND BOONE, LLP
901 MAIN STREET, SUITE 3100
DALLAS, TX 75202

EXAMINER

GEREZGIHER, YEMANE M

ART UNIT	PAPER NUMBER
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2144

DATE MAILED: 05/17/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/879,583

Applicant(s)

WIPFEL ET AL.

Examiner

Yemane M Gerezgiher

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 June 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

1. This application has been examined. Claims 1-24 are pending.

Information Disclosure Statement

2. The information disclosure statement filed 06/12/2001 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Although the inventive entity failed to provide a legible copy of the all documents cited in form PTO 1449, the examiner has managed to retain the contents of the patent documents (U.S. Patent Number 5,828,889 and WO 98/33121), which are now considered by the examiner. However, the non-patent document entitled, *Cluster of Supercomputers* cited in form PTO 1449 was not considered for the reason recited above.

Drawings

3. This application, filed under former 37 CFR 1.60, lacks formal drawings. The informal drawings filed in this application are acceptable for examination purposes. When the application is allowed, applicant will be required to submit new formal drawings. In unusual circumstances, the formal drawings from the abandoned parent application may be transferred by the grant of a petition under 37 CFR 1.182.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Mackenzie et al (U.S. Patent Number 6,363,495) hereinafter referred to as Mackenzie.

As per claims 1, 10 and 18, Mackenzie discloses a method and apparatus for detecting a partition (split-brain) and resolving the partition condition in a clustered computer system. See ABSTRACT, Figures 3-14C, Column 4, Line 40 through Column 5, Line 65. Mackenzie taught creating a specific data structure on disk blocks in a shared memory where the member nodes could access a specific slot on the disk namely CIB (cluster information block, CNM (cluster node map) and NIF (node information block) *accessible by the cluster of computers; dividing the memory unit into a plurality of slots, each slot associated with a plurality of nodes within the cluster of computers*) (See Column 8, Line 28 through Column 9, Line 44) and where the member nodes in the cluster write a generation number and a node list in the specified slots of the data structure when a change of membership occurs in the clustered computer system(See Column 10, Line 57 through Column 11, Line 31). Mackenzie disclosed *recording in the plurality of slots, a generation number and a list of known nodes by each one of the plurality of nodes*. See Figures 5A-5D, 13A –14C and Column 9, Lines

19-65 (Mackenzie clearly disclosed a generation number and a list of known member nodes written by the participating nodes that are in the clustered system) *wherein an identifier is written in the list for each node that is known to a writing node and wherein the generation number and the list of known nodes is recorded when a change of membership occurs in the cluster of computers.* See Figures 13A, 13B and Column 17, Lines 30-56 (Mackenzie taught an identifier written identifying every single writing node and recording generation number and list of known member nodes when a membership change occurs. For example, pointing to Figures 13A and 13B, in order for a node to join the clustered computer system with nodes number "node 0 (1302) and node 1(1304)", nodes 0 and 1 updated or re-wrote the new generation number and similarly the joining node numbered "node 2(1306)" wrote the new generation number and a list of the known nodes in the clustered computer system). Mackenzie disclosed *comparing each slot of the plurality of slots to ensure the generation number and the list of known nodes matches in each slot of the plurality of slots.* See Figure 8, Column 19, Lines 24-67 and Column 10, Lines 57-67 (Mackenzie taught reading or comparing each slots of the data structures containing therein a generation number and a list of known nodes matching with all slots having there in a status information of each and every node in the clustered system) *and creating a list of surviving nodes by listing a first set of nodes determined by comparing each slot of the plurality of slots;* See Figures 8-11, Column 12, Lines 38-67 (Mackenzie disclosed creating a list of surviving nodes by comparing each NIB's of all the nodes with original nodes list) *and shutting down each node not on the list of surviving nodes by requiring each node not on the list of surviving nodes to*

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write a special message in a respective slot for that node and then shut down immediately. See Column 19, Lines 38-42 (Mackenzie disclosed shutting down a node that is determined to be out of the list analyzed to be member nodes in a partition of a clustered computer system).

As per claims 2 and 11, *wherein the creating the list of surviving nodes includes listing a first set of nodes determined by comparing each slot of the plurality of slots was disclosed by Mackenzie.* See Column 12, Lines 43-55, Original list of live nodes was created based on node status information stored in each slot or block of the memory unit where a member node's status information was recorded therein (See Column 9, Lines 22-32).

As per claims 4, 13 and 20, Mackenzie disclosed *finding a list with a lowest node rank to create the list of surviving nodes and shutting down each node not on the list with the lowest node rank.* See Column 13, Lines 2-11, Figure 11 and Column 16, Lines 29-45 (checking or finding a list having the lowest numbered node and returning true (generating a surviving or live nodes) for the nodes determined to be in the lowest ranked nodes and returning false (shutting down) for the nodes determined not to be in the list of the lowest ranked nodes.

As per claims 5, 14 and 21, Mackenzie taught *finding a list with a largest node to create the list of surviving nodes and shutting down each node not on the list with the largest node.* See Figure 9B, Step 940, Column 19, Lines 15-17 (Mackenzie disclosed creating surviving nodes by selecting a list with largest nodes and shutting down nodes that were not on the list).

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As per claims 3, 6, 12, 15 and 22, Mackenzie disclosed *finding a list with a maximum number of nodes including a master node to create the list of surviving nodes and shutting down each node not on the list with the maximum number of nodes*. See Column Figure 9B, Step 940, Column 12, Lines 44-62 (Mackenzie disclosed finding an original list within the maximum number of nodes that were fully functioning and creating a set of live nodes and terminating nodes that were not with in the maximum number of nodes list).

As per claims 8, 16 and 23, Mackenzie disclosed *sending the list of surviving nodes to the each node on the list of surviving nodes along with a new generation number*. See Column 12, Lines 38-62, Column 9, Lines 54-64 and Column 10, Lines 57-67, where each member node in the clustered computer system was presented with a new list of live members (active member nodes)

As per claims 9, 17 and 24, Mackenzie disclosed *requiring each node not on the list of surviving nodes to re-register with the cluster of computers*. See Column 17, Lines 45-56 and Column 9, Lines 54-60 (a cluster state map containing information data of the cluster node membership identifying nodes that leave and join the clustered computer system by updating/re-registering status of the node in the cluster state map).

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.

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- a. Frank, Richard L. et al. (U.S. Patent Number 6,532,494) Entitled: *Closed-loop node membership monitor for network clusters*
 - b. Pinter, Shlomit et al. (U.S. Patent Number 6,460,039) Entitled: *Middleware support for primary component in a partitionable cluster environment*
 - c. Chao, Ching-Yun et al. (U.S. Patent Number 6,393,485) Entitled: *Method and apparatus for managing clustered computer systems*
 - d. Kampe, Mark A. et al. (US-PGPUB US 20020042693 A1) Entitled: *Cluster membership monitor*
 - e. Slaughter, Gregory L. et al. (U.S. Patent Number 6,014,669) Entitled: *Highly-available distributed cluster configuration database*
 - f. Basavaiah, M et al. (U.S. Patent Number 5,991,518) Entitled: *Method for improving tolerance to interprocessor communications faults - determines on each processor still operating if each processor still operating is to continue or halt operations based on each processor's respective view of system, continues or halts operations on each processor as required*
7. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Yemane Gerezgiher whose telephone number is 703-305-4874. The examiner can normally be reached on Monday- Friday from 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful. The examiner's supervisor, William Cuchlinski, can be reached at (703) 308-3873.

Yemane M. Gerezgiher
AU 2144

MARC D. THOMPSON
MARC THOMPSON
PRIMARY EXAMINER